Launch the LITENING Pod!

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"Launch the LITENING pod!" This phrase is usually said in jest and refers to how commanders view the capability of this device rather than the aircraft to which the pod is attached. Though originally conceived as a targeting and navigation device,[1] the intelligence, surveillance, and reconnaissance (ISR) capabilities of the LITENING Advanced Targeting (AT) pod have become an invaluable tool for the Marine air ground task force (MAGTF). The only Marine airframes that are fitted to use the LITENING pod are jet aircraft, which are expensive to operate, have limited time on station and have already been pushed closer to the end of their service life than planned since the beginning of the Global War on Terror.[2] Given the current environment, F/A-18D squadrons should be augmented with the OV-6B, a T-6B Texan II fitted with a LITENING pod, because it is cost effective, easily integrated, and has a MAGTF supportive time on station.

Current Situation

According to Jane's Information Group,

> The Northrup Grumman/Rafael AN/AAQ-28(V) LITENING targeting and navigation pod was originally developed in the early 1990s and provides a laser designator for precision munition strikes in day/night conditions, forward looking infrared sensor (FLIR) imaging and a closed couple device (CCD) television camera for targeting in the visible portion of the electromagnetic (E-M) spectrum. The Marine Corps began to fit the AV-8B Harrier for use of the LITENING pod in 2000 and the device soon paid dividends during Operation IRAQI FREEDOM.[3]

In the words of Major General James Amos, then commanding general of the Third Marine Aircraft Wing,

> Not only did (the Harriers) provide deadly precision strike capability and rapid retargeting via their onboard LITENING II FLIRs…I simply could not have been more pleased with the reliability of the airplane and its weapon system.[4]

To see how the LITENING pod is utilized in the current environment, the author analyzed the command chronologies for two Marine F/A-18D squadrons while they were deployed to Iraq at Al Asad Air Base. These squadrons were VMFA (AW)-224 from March to June 2005 and VMFA (AW)-242 from August to December 2006. To show how the F/A-18D supports the MAGTF, the training and readiness manual lists the following mission essential tasks for a Marine fighter attack squadron (all weather):

- Conduct sea and air deployment operations
- Develop intelligence
- Conduct fire support
- Conduct close air support
- Conduct interdiction operations
- Conduct joint suppression of enemy air defenses
- Conduct air to air operations
- Coordinate battlespace maneuver and integrate with firepower

Given the current environment in Iraq, tasks such as fire support, air to air operations, and suppression of enemy air defenses are not applicable and have not been since the spring of 2003. According to VMFA (AW)-224,

> Typical missions while VMFA (AW)-224 was assigned to the Marine Expeditionary Force (MEF) were the following: On-Call Close Air Support (XCAS), Armed Reconnaissance (AR), Infrastructure ISR, Advanced Tactical Airborne Reconnaissance System (ATARS) and Convoy Escort. The most common tasking from these ground units (Marine Corps and Army) was utilizing the capabilies of the LITENING AT Pod to identify, monitor and report any activity in the vicinity of historical insurgent mortar and rocket point of origin (POO) sites. The addition of the Pioneer and Predator data link capability to the LITENING AT pod, combined with the two seat Hornet, provided the II MEF's Joint Terminal Air Controllers (JTAC) the ability to positively identify the enemy, and by seeing what the aircrew was seeing in real time, minimizing the time to prosecute known hostile targets.[5]

While the LITENING pod can provide a great capability, the F/A-18D's ability to provide accurate close air support to the GCE is what makes the aircraft valuable. From March to June 2005, VMFA (AW)-224 dropped an average of 12 bombs per month, which equaled one bomb for every 33 sorties flown. From August to December 2006, VMFA (AW)-242 dropped an average of 21 bombs per month, which equaled one bomb for every 21 sorties flown. While the ability to conduct CAS cannot be disregarded, there are many sorties that do not release ordnance.

Operations in support of the Global War on Terror have certainly placed a strain on the F/A-18D. A seven-month F/A-18D squadron deployment to Iraq causes the equivalent of three and a half years worth of hours to be put on the aircraft.[6] The overuse of the F/A-18 is further addressed in the 2007 Marine Aviation Plan, "The health of our F/A-18 inventory is critical to the success of TACAIR Integration (TAI). This inventory faces significant service life challenges including wing fatigue, arrested landings, total flight hours, and total landings."[7]

Proposed OV-6B

Cost effectiveness

A solution to this problem is to augment F/A-18D squadrons with the OV-6B, a low cost, low maintenance aircraft which can provide for many of the same missions. The T-6B Texan II or JPATS (joint primary aircraft training system) is the new Navy/Air Force aircraft for initial pilot training. As of fiscal year 2007, the T-6B is used with the training of naval flight officers and not pilots, as the Navy has procured only 74 of 315 aircraft.[8] However, the Navy will procure another 218 JPATS during the next five years. In the near future, all Marine aviators will have flown this aircraft. The next step would be to purchase more aircraft in order to augment operating force squadrons, which would be easier while the production

lines are still open. When compared with other aircraft, the T-6B is relatively inexpensive:

T-6B: $6.2 million

Joint Strike Fighter: $95 million

F/A-18 E/F: $57 million

Predator unmanned aerial system: $130 million

Another cost advantage of the OV-6B involves a longer time on station capability at a lower cost per flight hour:

	Cost per flight hour	Time on Station
F/A-18D	$4638	2 hours*
OV-6B	$300-400	3+ hours**

* Can aerial refuel, but will be off station.
** Cannot aerial refuel

Ease of integration

The T-6B has nearly all of the avionics and instrumentation for use with the LITENING pod. The cockpit has three liquid crystal multi-function displays (MFDs) that could display the pod's thermal and visible E-M images, as well as a heads up display (HUD). The cockpit is generation four night vision goggle compatible and the LITENING pod's tactical datalink feature is listed as a potential addition to the T-6B.[9] Other necessary modifications to the aircraft would be the installation of two ARC-210 VHF/UHF radios, KY-58 radio encryption units, and the same aircraft survivability equipment

(ALR-67 radar warning receiver, ALQ-126B infrared jammer, and the ALE-47 countermeasure dispensing system) used by the F/A-18D. The T-6B also has three hardpoints under each wing that could accommodate the addition of rocket pods which could be used for the marking targets.[10] By using many of the same avionics as the F/A-18D, minimal training would be required for the maintainers due to their familiarity with the systems.

Creating separate OV-6B squadrons would not be feasible or cost effective. The staffing of supporting personnel and infrastructure would be a strain on the Marine Corps' manpower requirement and budget. By augmenting F/A-18D squadrons with a small number of OV-6Bs (5-6), additional aircrew, and maintainers, the new aircraft would then be supported by the administrative and maintenance departments that are already in place.

MAGTF support

The naming convention for this aircraft is a reference to the OV-10 Bronco. This aircraft was used as a forward air controller (airborne) (FAC(A)) platform, but also performed visual reconnaissance, naval gunfire spotting, and helicopter escort. However, the Bronco was viewed as an obsolete aircraft and Marine OV-10 squadrons were stood down in 1995.

The OV-6B would perform the same mission as its predecessor and also as a single aircraft. However, with the addition of

the LITENING pod, the aircraft would have a stronger observation and targeting capability. The OV-6B's primary role in the MAGTF would be the mission of FAC(A). The role of the FAC (A) has many responsibilities. It includes conducting reconnaissance, controlling CAS aircraft and indirect fire assets, target marking/designation, and damage assessment. Another viable mission is tactical air coordinator (airborne) (TAC(A)), an airborne extension of the tactical air command center and possibly the direct air support center (DASC). The DASC, whose responsibilities include the coordination of CAS aircraft, acts as a manager of airspace. Finally, the OV-6B could be used in the role of strike coordination and reconnaissance (SCAR). This mission does not necessarily involve dropping ordnance, but rather assumes the role of a deep airspace coordinator by expediting the flow of deep air support aircraft to and from the target area. What would make the execution of these three missions seamless for OV-6B crews is that the F/A-18D is the only Marine aircraft that conducts all of these missions. No additional training would be required.

Counterarguments

Opponents would counter that the aircraft has numerous limitations, especially when compared with other fixed-wing aircraft. The most obvious is that it is a relatively slow

aircraft and would not have much of an air-to-ground weapons delivery capability. The aircraft's limitation of 230 knots per hour would mean that it could not be a part of a large, strike aircraft package. However, it is not meant to be.

The aircraft's airspeed limitation would be a benefit when used as a FAC (A), convoy escort, or reconnaissance platform. The aircraft's endurance (time on station) will allow it to loiter over the target area for however long a ground controller requires. Another example in the current operating environment shows how the OV-6B's airspeed limitation is negligible. For comparison, it would only take 15 minutes for the OV-6B to take off from Al Asad Air Base and become established over the city of Fallujah, as opposed to the nine minutes required for a jet aircraft to make the 85 mile trip.

The aircraft's lack of weapons would also not inhibit the OV-6B. Among the Marine Corps, Army, and Air Force, there is a plethora of fixed-wing and rotary-wing close air support aircraft in the skies above the battlefield ready to conduct CAS. The OV-6B will not be a CAS aircraft; it will be a CAS facilitator.

Another argument against the OV-6B is that the aircraft cannot self-deploy, meaning that it would have to be taken apart and shipped to theater via cargo aircraft. In the case of an fixed-wing squadron, the unit is only capable of flying its

aircraft to wherever the squadron is deploying. The remaining personnel and maintenance equipment are transported via cargo aircraft. In the case of VMFA (AW)-242, their logistics department coordinated the movement of 57.1 tons of cargo and 186 personnel on their last deployment to Iraq.[11]

Finally, the principle argument against the development of this aircraft is that it is not a fifth generation platform, meaning that it is not a leap beyond existing technology. In order to receive funding, it seems that a defense project needs to have a certain level of sexiness (bells and whistles) about it, such as the MV-22 Osprey's ability to fly long distances and land in small zones or the joint strike fighter's stealth capability. Admittedly, the design of the OV-6B is not revolutionary. The concept is simply an amalgamation of existing technology. However, simple ideas and technologies which fulfill a requirement have merit. An example of this would be HESCO barriers. A steel wire, cloth lined container that is filled with dirt could hardly be called advanced technology. However, HESCO barriers are effective at stopping bullets and shell fragments. For this reason, these barriers are found at every U.S. base in Iraq; it is a simple solution to an existing problem.

Conclusion

The OV-6B is a cost-effective and capable aircraft that would ease the strain on the F/A-18D. Despite the lack of firepower, this aircraft can still provide a critical service to the MAGTF.

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Notes

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2. BGen R.S. Walsh, “Marine Aviation Update” Power Point, slide 5, Oct 24, 2007 <http://hqinet001.hqmc.usmc.mil/AVN/Documents/Cmdrs%20crs/ADCA%20BRIEF/Optimized%20Commander's%20Course%2023%20Oct%2007-FinalADCA.ppt.>.

3. Jane’s Online, Electro-Optic Systems.

4. Jane’s Online, Electro-Optic Systems.

5. VMFA (AW)-224 Command Chronology, page 3, June 2005.

6. Walsh, slide 5.

7. Deputy Commandant for Aviation, 2007 Marine Aviation Plan (Av Plan), page 6-3, June 2007, <http://hqinet001.hqmc.usmc.mil/AVN/Documents/Signed%20AvPlan.pdf>

8. Jane’s Online, All’s The World’s Aircraft, Beechcraft (300) T-6 Texan II, <http://www4.janes.com/K2/doc.jsp?t=B&K2DocKey=/content1/janesdata/yb/jawa/jawa1411.htm> (accessed October 18, 2007).

9. Jane’s Online, All’s The World’s Aircraft.

10. Jane’s Online, All’s The World’s Aircraft.

11. VMFA (AW)-242 Command Chronology, page 5, Sept 2006.

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